ICHTHYOLOGICAL NOTES AND ILLUSTRATIONS. (PART 2.).

By Gilbert P. Whitley, F.R.Z.S.

(Text-figs. 1-10.)

In preparing the letterpress for volume two of my "Fishes of Australia" (work upon which has had to be deferred for the time being), I have accumulated some miscellaneous notes and figures which call for separate treatment in a scientific journal. A selection from these notes is accordingly presented here, in continuation of an earlier paper (Austr. Zool., x., 1, 1941, pp. 1-50). Again, I have to thank Mr. G. C. Clutton for his photography.

References to genera will be found in Neave's *Nomenclator Zoologicus*, to species in McCulloch's 1929 Check-List (Austr. Mus. Mem., v.).

Family Triakidae.

Fur, *gen. nov.*

Orthotype, *F. macki, sp. nov.*

Pupil horizontal. Nictitating fold and spiracles present. No nasoral groove. Nasal cirrhus acute. Five gill-slits on each side. Labial folds present. Teeth acute, compressed, those of upper jaw with about four cusps; of lower with one.

Body subcylindrical to fusiform, back gibbous anteriorly. Two dorsal fins, without spines. Anal fin present. Caudal axis not much elevated. No caudal pits.

Latin; *fur*, a "shark" or villain.

This new genus is distinguished from all the many genera of Galeoid sharks by having the above combination of characters. It enters the family Triakidae of White, 1936, but is easily separable from *Triakis scyllium* (see Müller and Henle, Syst. Plagiost., 1839, p. 63, pl. 26), the genotype of *Triakis* Müller and Henle, 1838, by the following key characters, apart from various minor features.

A. Snout longer than width of mouth.
Nasal cirrhus acute.
Teeth of upper jaw with three cusps to one side of central cusp; of lower jaw without cusp.
Back humped anteriorly . . . *Fur*, gen. nov.

AA. Snout much shorter than width of mouth.
Nasal cirrhus broad and rounded.
Teeth with two small cusps on each side of central cusp.
Back not humped anteriorly . . . *Triakis*.

A few generic types superficially like the new one may be distinguished as follows:—

Paragaleus Budker (Bull. Mus. Hist. Nat. Paris, vii., 1935, p. 107. Type, *P. gruveli* from Dakar) has dental features like my new shark, but has a more acutely pointed snout, with consequent modification of head proportions; nasal lobes not cirrhiform, caudal pits present, interdorsal space less than upper caudal lobe, five crests on denticles and more uniform coloration. *Hemigaleus* Bleeker, 1852 (= *Negogaleus* Whitley, 1931) has caudal pits above and below.

From the American *H. pectoralis* Garman, 1906, as figured by Garman (Mem. Mus. Comp. Zool., xxxvi., 1913, pl. iv., figs. 1-5), the new shark differs in form of nostril-lobes, elevation of back, teeth, larger spiracles and varied coloration. It is doubtful whether Garman's species is a true *Hemigaleus*, i.e., *Negogaleus*, the typical species of that genus (*microstoma* Bleeker, 1852, from the East Indies and Queensland), differing markedly in dentition and proportions (see Whitley, Fish. Austr., i., 1940, p. 108, fig. 108).

Hemitriakis leucoperiptera Herre (Philippine Journ. Sci., xxiii., 1923, p. 67, pl. i.) from the Philippines, has small nasal flaps, and teeth more as in *Triakis*, with small cusps on each side of the central fangs.

FUR MACKI *sp. nov.*

Snout bluntly rounded, profile acute. Nostrils large, with nasal flaps which do not reach the crescentic mouth. Eye moderate with small pupil. Nictitating fold as long as eye. Spiracle small. Teeth in upper jaw rather like those of the School Shark, *Notogaleus*; but with four acute cusps on outer margin of each, the deflected inner margins smooth. There appear to be several small erect points on the upper symphysial teeth. Teeth of

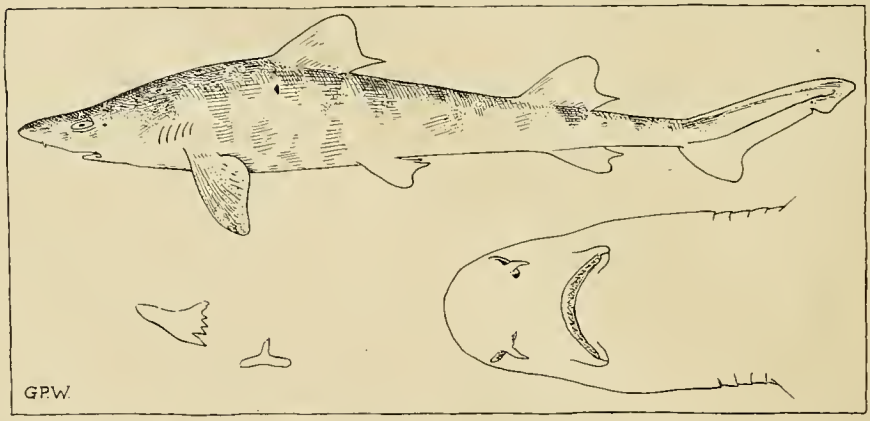

Fig. 1. Shark, *Fur macki*. Holotype, Mordialloc, Victoria. Also teeth and ventral surface of head. G. P. Whitley, del.

lower jaw each with a single median cusp, acute and suberect, with broad, entire bases. Several functional series in each jaw but dentition weaker at symphyses. Upper labial folds longer than lower. First to third gill-openings subequal, longer than fourth and fifth. Last gill-slit over pectoral base.

Head and body together shorter than rest of shark. Form deep anteriorly, tapering posteriorly, caudal axis not much elevated. No inter-dorsal ridge but a rather shallow groove. No caudal pits. Shagreen dense and hard, denticles varying from tricarinate on dorso-lateral surfaces to smooth on belly and top of tail, not notably enlarged over caudal.

The stomach contained a small octopus. Spiral valve of the "spiral type" of Dr. White's classification (Bull. Amer. Mus. Nat. Hist., lxxiv., 1937).

First dorsal fin over pectoral-ventral interspace. Second dorsal fin very large, subequal to first. Anal fin small. Pectorals and ventrals rather small. Subcaudal notched. Origin of lower caudal lobe in advance of that of upper.

The general proportions and relative positions of the fins are as shown in the figure: following are the principal dimensions of the holotype in millimetres:—

Head to first gill-slit, 85 mm.
„ „ fifth „ „ 102.
Snout to anterior margin of eye, 34.
Diameters of eye, 16 by 7.
Interorbital, 33.
Internarial, 16.
Preoral length, 37.
Width of mouth, 32.
Predorsal length, 163.
Depth at origin of first dorsal, 72.
First dorsal fin; anterior margin, 59.
„ „ „ ; base, 46.
„ „ „ ; lobe, 25.
Interdorsal space, 108.
Second dorsal fin; anterior margin, 58.
„ „ „ ; base, 44.
„ „ „ ; lobe, 19.
Distance from second dorsal to base of caudal, 59.
Anal fin; anterior margin, 44.
„ „ ; base, 31.
„ „ ; lobe, 13.
Anal base to caudal base, 41.
Pectoral; length, 64.
„ ; base, 20.
Ventral; anterior margin, 35.
„ ; base (to outer angle of clasper), 25.
„ ; lobe, 20.
Caudal; upper lobe, 103.
„ ; lower „ 42.

Ground-colour yellowish with about a dozen ill-defined cross-bands of light brown extending to near ventral surface. A few round light spots are symmetrically disposed on top of head, there are one or two on back anteriorly, and six or less along each side near lateral line, besides one or two on upper surface of pectorals. Eye bluish, after long preservation in alcohol.

Described and figured from the holotype of the species, an immature male, 500 mm. in total length, caught at Mordialloc, Victoria, in 1906. National Museum (Melbourne) regd. no. R. 13258.

Named in honour of Mr. George Mack, ornithologist and ichthyologist of the National Museum, Melbourne.

Family CLUPEIDAE.

ESCUALOSA MACROLEPIS (Steindachner, 1879).

Fig. 2. Deep Herring, *Escualosa macrolepis*. Young topotype, Townsville, Queensland. G. P. Whitley, del.

Here figured from a specimen (Qld. Mus., No. I., 7195) from the type-locality, Townsville, Queensland, 3-1/8th inches in total length. D.17; A.18. Head, 13 mm.; depth, 21; standard length, 63. Eye, 4.5; snout, 3.1; maxillary, 6.3 mm. Scales deciduous, in about 35 transverse and 7 longitudinal series. About 18 pre-ventral scutes and 11 post-ventrals. A blackish stripe runs along back and thickens out before tail; there is a separate dark blotch at hypural; 14 black dots below dorsal and 17 over anal fin.

Family CLUPANODONTIDAE.

FLUVIALOSA *gen. nov.*

Orthotype, *Chatoessus elongatus* Macleay, 1883.

Large fluviatile or estuarine Australian herrings, with the mouth small, subterminal, toothless, notched at symphysis, the jaws forming a sharp angle. Maxillary narrow, expanded distally where its downward angle extends a little past end of premaxillary. Only one supra-maxillary on each side. Edge of dentary reflected outwards in front of maxillary. Exposed part of subopercle rather small and suboblong. Second suborbital not covering cheek, with oblique antero-inferior edge, distant from lower limb of preoperculum, which has a naked area above it. Gill-rakers very numerous. Last dorsal ray elongated.

D. 13-16. A. 18-20. Low scaly sheaths to dorsal and anal fins. Ventrals 7-rayed, inserted below anterior dorsal rays, or in advance of level of same. No dark humeral blotch. Body compressed. Belly serrated. Scales large, cycloid.

The genotype of *Nematalosa* Regan (Ann. Mag. Nat. Hist. (8), xix., 1917, p. 312), the genus in which *elongatus* has lately been pigeon-holed, is the marine *Clupea nasus* Bloch, selected in Jordan's "Genera of Fishes." True *Chatoessus* Cuvier, 1829, is a very different genus from the Antilles.

Besides *Fluvialosa elongata*, my new genus includes *F. horni* (Zietz, 1896) and *F. richardsoni* (Castelnau, 1873).

FLUVIALOSA ELONGATA (Macleay, 1883).

Chatoessus elongatus Macleay, Proc. Linn. Soc. N.S. Wales, viii., July 17, 1883, p. 209. Mary River, Queensland; freshwater lagoons.

The holotype of this species, from Maryborough, Queensland, is in the

Australian Museum (Regd. No. IA. 6018) and is not figured. It has D.3, 11; A.1, 18; P.1, 14; V.1, 6; C.17. Sc. 42. Tr. 17. About 15 predorsal scales. Ventral scutes 17 + 11. Gill-rakers very numerous. No teeth. A broad skinny flap behind operculum. No axillary pectoral scale. Total length, 11 inches. Standard length, 225 mm. Head, 71; eye, 14; depth of body, 80; longest dorsal ray, 84 mm. Other characters as defined for the genus.

Colour, olivaceous above, silvery below.

Range: Central and eastern Queensland (freshwater): Mary River; Boulia district, Longreach and Cunnamulla, Queensland.

The gills are sometimes infested with Sporozoan parasites. (See Johnston and Bancroft, Proc. Roy. Soc. N.S. Wales, lii., 1919, p. 526 and Proc. Roy. Soc. Qld., xxxiii., 10, 1921, p. 177). A larval trematode from this species is recorded by Johnston (Rec. S. Austr. Mus., vii., 1942, p. 187).

Family Engraulidae.

Genus Amentum Whitley, 1940.

Amentum carpentariae (De Vis, 1882).

Engraulis carpentariae De Vis, Proc. Linn. Soc. N.S. Wales, vii., 1882, p. 320.

Norman River, Gulf of Carpentaria.

Stolephorus waitei Jordan and Seale, Bull. Mus. Comp. Zool. Harvard, lxvii., 1926, p. 379. [North] Queensland.

Amentum carpentariae Whitley, Austr. Zool., ix., 1940, p. 403, fig. 10.

Thanks to the courtesy of Professor Thomas Barbour, Director of University Museum, Museum of Comparative Zoology at Harvard College, Cambridge, Massachusetts, I have been supplied with a photograph of the type specimen of "*Stolephorus waitei*" (M.C.Z., Regd. No. 18,254).

Fig. 3. Anchovy, *Amentum carpentariae*. Holotype of *Stolephorus waitei* from Queensland. Photo. from Mus. Comp. Zool., Harvard.

The type of *waitei* differs from *carpentariae* in having snout 2 in eye instead of about 1.2 to 1.5 in same, anal fin with 19 rays instead of 20 to 21, originating below about 10th dorsal ray instead of 5th. These differences may well be due to variation or change with growth, and *waitei* is in my opinion a synonym of *carpentariae*.

Family Opisthoproctidae

Monacoa *gen. nov.*

Orthotype, *Opisthoproctus grimaldii* Zugmayer (Bull. Inst. Oceanogr., 193,

1911, p. 2; Res. Camp. Sci. Monaco, xxxv., 1911, p. 13, pl. i., fig. 5) = *Monacoa grimaldii*.

This new generic name is to replace *Grimaldia* Chapman (Ann. Mag. Nat. Hist. (11), ix., April, 1942, pp. 272, 299 and 300), which is preoccupied by *Grimaldia* Chevreux (Bull. Soc. Zool. France, xiv., 1889, p. 283), a genus of Crustacea Amphipoda. Chapman's definition of *Grimaldia* constitutes the diagnosis of the new genus, *Monacoa*.

Family TACHYSURIDAE.

Genus COCHLEFELIS Whitley, 1941.

COCHLEFELIS COLCLOUGHI (Ogilby, 1910).

Hemipimelodus colcloughi Ogilby, Proc. Roy. Soc. Qld., xxiii., November 7, 1910, p. 7. Croker Island, Northern Territory. Holotype (No. I., 1538) in Queensland Museum. *Id.* McCulloch, Austr. Mus. Mem., v., 1929, p. 61.

Hemipimelodus colcloughi is evidently a second species of *Cochlefelis* differing from the genotype, *C. spatula* (types compared), in being of more robust form, having the anterior nostrils closer together than the posterior, in having a few granular teeth on palate, and a better developed vertical l.lat. system, besides its smaller predorsal shield, free orbital margin, interorbital wider than mouth, nine gill-rakers on lower half of first branchial arch, conspicuous vent, adipose dorsal fin short and over middle of anal, and base of anal less than half head.

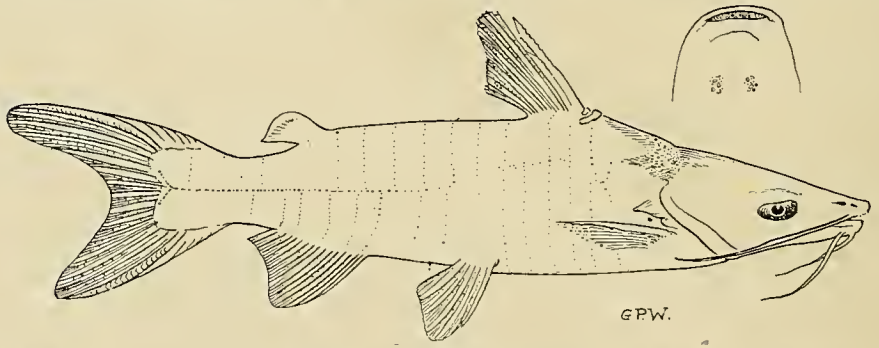

Fig. 4. Catfish, *Cochlefelis colcloughi*. Holotype, Croker Id., Northern Territory. G. P. Whitley, del.

Here figured from the holotype of the species kindly loaned by the Director of the Queensland Museum. The vomerine dentition was not mentioned by Ogilby; he evidently had difficulty in finding it, judging from the way the type has been cut about. There appears to be a patch of granular teeth far back on each side of the palate.

Cochlefelis colcloughi is also allied to *Hemipimelodus papillifer* Herre, 1935, from the Sepik River, New Guinea, but has fewer anal rays, more flattened head, base of adipose fin 6½ in interdorsal space instead of 3 or 4, and has an axillary pore at pectoral. In all these respects, except the last, it also differs from *Pimelodus borneensis* Bleeker, 1851, the genotype of *Hemipimelodus* Bleeker, 1858.

Family SYNODONTIDAE.

Genus XYSTODUS Ogilby, 1910.

Xystodus Ogilby, Proc. Roy. Soc. Qld., xxiii., November 7, 1910, p. 5. Orthotype, *X. banfieldi* Ogilby [= *sageneus* Waite, 1905].

Allouarnia Whitley, Austr. Zool., viii., March 12, 1937, p. 219. Orthotype, *Synodus sageneus* Waite, 1905.

Lizard fishes with palatine teeth in a single band. Large teeth of jaws spear-shaped. A pit, fringed with papillae, behind and below eye. Lateral line present. No adipose dorsal fin (except in young). Pectorals small. About 14 anal rays. Inner ventral rays much longer than outer. Pelvic bones with short laminar posterior processes.

XYSTODUS SAGENEUS (Waite, 1905).

Synodus sageneus Waite, Rec. Austr. Mus., vi., 2, September 15, 1905, p. 58, pl. viii., fig. 1. Trawled between Fremantle and Houtman's Abrolhos, Western Australia. Type in Western Australian Museum, Perth. *Id.* Norman, Proc. Zool. Soc. (London), April 3, 1935, p. 117.

Xystodus banfieldi Ogilby, Proc. Roy. Soc. Qld., xxiii., November 7, 1910, p. 6. Near Dunk Island, Queensland (E. J. Banfield). Type (No. I., 14) in Queensland Museum, Brisbane. *Id.* Norman, Proc. Zool. Soc. (London), April 3, 1935, p. 101 (Bowen, Qld.).

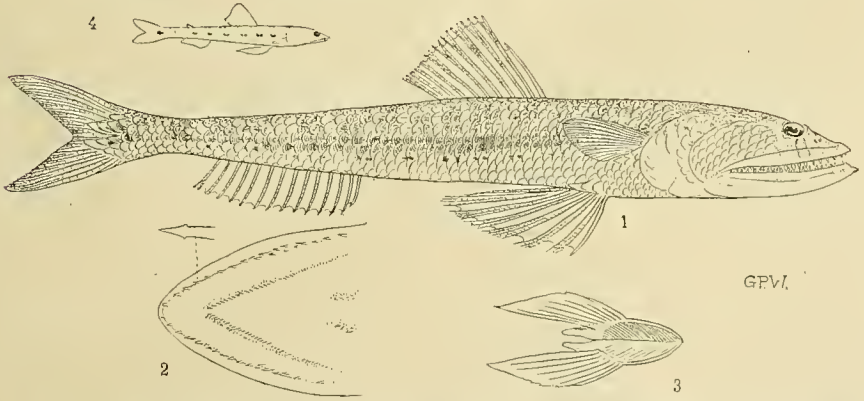

Fig. 5. Lizard Fish, *Xystodus sageneus*. No. 1. Holotype of *X. banfieldi* from near Dunk Island, Queensland. (2) Dentition of palate of same and a spear-shaped tooth enlarged. (3) Pelvic processes and ventral fins of same. (4) A postlarval specimen from Lindeman Island, Queensland. G. P. Whitley, del.

Mr. H. Longman, Director of the Queensland Museum, has kindly lent me Ogilby's type of *X. banfieldi* for figuring. He suggested that owing to a mechanical error, certain features were reversed in the original description which is inaccurate in several respects. Ogilby says, "no lateral line," but one is discernible under the microscope. He says, "dorsal fin inserted midway between the tip of the snout and the root of the caudal," but probably meant dorsal fin *situated* thereabouts. Also his "vent much nearer to the ventral than to the anal" is an obvious mistake, the reverse being the case.

His specimen is now curled and a little squashed, but even when due allowance is made for distortion, several discrepancies between it and his description are apparent.

Misled by these mistakes, later authors have been unable to classify Ogilby's genus and species which is evidently a young *sageneus* Waite, 1905, unless its different colour pattern entitles it to rank as an eastern subspecies.

Ogilby's type has about 15 predorsal scales and the pectoral fin reaches to about the 10th scale of the lateral line. L.tr. 4/1/5. The Australian Museum has several specimens from off Lindeman Island, Queensland, collected by M. Ward and myself, and one from Mapoon, Gulf of Carpentaria, Queensland, collected by Charles Hedley (I.6140). Records of the American *Saurus intermedius* from the Arafura Sea may refer to this species. Small examples have a minute adipose dorsal fin, but this is lost and its site covered by scales in larger fish. A post-larval specimen (No. IA.6486), about 29 mm. in standard length, from off Lindeman Island is illustrated here. It has eight pairs of dots along each side of back; nine blotches along sides of body, the first small, behind the gill-slit, and the last large on root of tail. No spots along belly. A few dusky specks on snout, chin and opercle. Mucus canals on the head, also scales, and lateral lines are well developed.

Family Myctophidae.

Genus Gonichthys Gistel, 1850.

Gonichthys Gistel, Isis (Munich) (5), 1850, p. 71. Haplotype, *Alysia loricata* Lowe, 1839 = *Scopelus cocco* Cocco, 1829. *Id.* Whitley, Rec. Austr. Mus., xix., 1933, p. 64. Type, *Gonichthys cocco*.

Gonichthys barnesi *sp. nov.*

D., 11-12; A., 18-21; L.lat., 38; Tr., 2/1/3. Predorsal, 11.

Head compressed, deep, snout rounded, overhanging the mouth. Lower jaw included. Jaws and palate-bones with villiform teeth. Maxillary extending well behind eye. Eye not nearly reaching profile, about 3.7 in head. A V-shaped internasal ridge. Gill-rakers long, 10 on lower part of first branchial arch.

Size small, body compressed, with adherent cycloid scales, with four or five basal furrows. Lateral line scales enlarged. Depth of body less than length of head which is about 4 in standard length. Caudal peduncle long and tapering. Distance from origin of anal to caudal longer than distance from anal to centre of eye (though not as long as in *hians* Richardson).

Large antorbital luminous organs.

Photophores: Br. 3. Max: O. Op: 1. PLO: 1. PVO: 2. PO: 5. VLO: 1. VO: 4. SAO: 3. POL: 1. AO: 7. PA: 11. Prc: 2. The PO photophores are equidistant. The anal photophores vary from AO: 6 to 8, and PA: 11 to 12. SAO form an obtuse angle. First SAO slightly in advance of third VO. VLO level with first and second SAO.

Nine supracaudal scales, of which seven are luminous in most specimens; probably males; others (females) have four or five infra-caudal luminous plates. 41 vertebrae.

Origin of dorsal before middle of body. Anal fin originating below the

Fig. 6. Lantern Fish, *Gonichthys barnesi*. Holotype and paratypes. Lord Howe Island. G. C. Clutton, photo.

posterior dorsal rays, behind middle of standard length. Pectorals longer than ventrals, but not nearly reaching anal. Caudal forked.

Colour in alcohol brownish or bluish, with burnished silvery scales on flanks. Luminous areas yellowish. Fins whitish, or with scattered dark dots. Roof of mouth blackish.

Locality.—Lord Howe Island, washed up on Blinkenthorpe Beach in 1922 and 1926, after light inshore winds and smooth seas.

Holotype and paratypes, up to 54 mm. long in Austr. Mus. (Regd. No. IA.953) figured here. Other paratypes are Regd. Nos. IA.952 and 2650. Forty-one specimens, up to a little over two inches long.

Named after Mr. William Barnes, who has collected specimens in New South Wales and at Lord Howe Island, and whose labours contributed largely to the recent re-organisation of the fish collections in the Australian Museum.

Australasian records of the Atlantic *coruscans* Richardson, 1845, may refer to this species. A deeper fish with comparatively shorter caudal peduncle, *coruscans* is described as having no glandular apparatus over the caudal peduncle and with the scale having about three basal furrows; *G.*

cocco also differs in its deeper habit. AO 8 is a higher value in *barnesi* than in other species of *Gonichthys*.

Range.—Between Australia, Lord Howe Island, and New Zealand.

Family SYNGNATHIDAE.

CAMPICHTHYS FATILOQUUS *sp. nov.*

Fig. 7. Pipefish, *Campichthys fatiloquus*. Holotype, Shark's Bay, Western Australia. G. C. Clutton, photo.

D., 13; A., vestigial; P., 7; C., 6.
Rings, 13 + 46; subdorsal rings, 2 + 2.

Head (5 mm.) 12.8, depth of body (less than 2) more than 32 in total length (64). Head and body, 17 mm.; predorsal, 16; caudal, 2.5; eye, 1.5; snout, 2; postorbital, 3 mm.

Head smooth, slightly compressed, with median crest along snout and a weak ridge below nostril. A small filament over each eye. Operculum longer than high, with a weak ridge right across it, and some downward striae.

Body five-angled in transverse section. Form very elongate. No brood pouch in type-specimen. Ventral carina present. Superior cristae of trunk and tail continuous. Median crista of body dips below dorsal fin to join lower crista of tail. Inferior cristae of trunk converge and cease near vent, and are discontinuous with those of tail. Small dermal flaps at intervals along body-rings which are lightly sculptured, with few radiating grooves, and without tooth-like spines.

Fins well developed, except the anal, which is vestigial.

Colour in life fairly uniform blackish. In spirits, dark brown with lighter yellow patches behind interorbital and on opercula. Body and tail mottled with darker and lighter browns, corresponding to annuli. Dorsal yellowish, with the anterior rays brown. Caudal dark brownish. Pectorals yellowish. Eye bluish with yellow mottling.

Described and figured from the holotype, 64 mm. or 2½ inches long. Austr. Mus. Regd. No. IB.340.

Locality.—Dredged in the pearling grounds, Shark's Bay, Western Australia; 1939, by G. P. Whitley.

The Freycinet Harbour specimens identified as *Ichthyocampus filum* by Günther (Cat. Fish. Brit. Mus., viii., 1870, p. 178) are most likely this species, which I (Austr. Zool., vi., 1931, p. 313) believed required a new name since true *filum* has 16 body-rings.

Differs from *C. runa* Whitley (l.c., 1931) in having larger dorsal and pectoral fins, in proportions, and colour. From *C. tryoni* (Ogilby, 1890), the number of rings and disposition of cristae separate *fatiloquus*.

Genus Parasyngnathus Duncker, 1915.

Parasyngnathus altirostris (Ogilby, 1890).

Syngnathus altirostris Ogilby, Rec. Austr. Mus., i., 3, July, 1890, p. 55. Moreton Bay, Queensland and Clarence River, N.S. Wales.

The Black-chinned Pipefish belongs to the genus *Parasyngnathus* of Duncker (Mitt. Naturh. Zool. Mus. Hamburg., xxxii., 1915, p. 14. Logotype, *Syngnathus spicifer* Ruppell, by present designation). This generic name has been omitted from Jordan's "Genera of Fishes" and from standard nomenclators.

The accompanying illustrations are from the types in the Australian Museum, a female lectotype from Moreton Bay and a male co-type (with broken tail) from Clarence River. Mr. T. Iredale has also collected this fish at Noosa River, Queensland.

Fig. 8. Pipefish, *Parasyngnathus altirostris*. Female lectotype from Moreton Bay, Queensland, and (above) male co-type (with broken tail) from Clarence River, New South Wales. G. C. Clutton, photo.

The main specific characters may be diagnosed as follows:—

Upper profile of snout evenly continued in that of forehead. Gill-openings sealed except for a superior oval slit. Eye small. Snout longer than postorbital portion of head. Middle of opercle with a ridge and with downward radiating striae. Body deeper than broad. Rings 15 to 17/40-42. Dorsal ridge of body ends below dorsal fin, median ridge ends a little before this; neither continuous with dorsal ridges of tail. A median ventral ridge present.

Dorsal fin situated on seven anterior caudal rings entirely behind level of vent, with about 26 to 28 rays, and its base not elevated. Anal fin minute. Pectorals well developed, with about 14 rays.

Brood pouch subcaudal, from anal fin backwards over 16 rings as a very elongate median slit with raised lips. Tail very elongate. Dark streak along middle of chin, or a series of spots. Stripes over lower part of gills.

South of Maryborough, Queensland, to northern N.S. Wales, entering and living in freshwater.

Family Hemiramphidae.

Euleptorhamphus longirostris (Cuvier, 1829).

The Australian Musem has an abnormal juvenile specimen (with no ventral fins) from the Noosa River, Queensland. Also normal examples

from Bateman's Bay and north of Tuggerah Entrance, N.S. Wales (washed up on beach, January, 1941). Another, from the Albany district, constitutes a new record for Western Australia.

Family Mugilidae.

Oedalechilus kesteveni *sp. nov.*

D. iv/i., 8. A.iii., 9 (last divided); P.i., 15; V.i., 5; C., 12 branched rays. Sc., 35; Tr., 11; predorsal, 22.

Head (37 mm.) nearly 4, depth (42) 3.5 in standard length (147). Snout (6.5) nearly 5.7, eye (9) 4.1, interorbital (17) 2.2 in head.

Head longer than high and higher than wide. Two rows of cycloid cheek-scales. Scales around preoperculum with deep mucous channels.

Snout short and blunt, excavate anteriorly. Nostrils small, oval, the posterior larger. Interorbital roundly convex. Eye large, half the post-orbital, without adipose lids, except for a narrow rim anteriorly. Cleft of mouth much broader than deep. Upper lip deep, with a transverse fold, without papillae, its cultrate margin ciliated; lower lip less deep but with similar ciliae at edge, and with double symphysial knob. Tongue with slight median crest. Preorbital slightly notched, serrated. Maxilla extending beyond level of posterior nostril to below margin of eye. Tip of maxilla exposed. Opercles almost meeting along median ventral line. Posterior margin of operculum steep.

Body compressed, deep, the rostro-dorsal profile strongly arched. Ventral profile straighter and less steep. Scales with clear margins and ragged edges, and about six radiae. Some extend on to all the fins except the ventral. Axillary scales present. Depth of caudal peduncle (20 mm.) more than half head.

Origins of dorsal fins corresponding to about 12th and 22nd body-scales respectively. First dorsal spine equidistant from snout and caudal base, reaching more than half its distance from first dorsal rays. Anal origin in advance of level of second dorsal origin. Pectoral slightly longer than head, inserted high and reaching to below spinous dorsal fin, and to about 13th body-scale. Caudal emarginate.

Colour in alcohol, silvery, darker above; a dark blotch over base of first pectoral ray. No stripes.

Described from the holotype, a specimen 147 mm. in standard length, or $7\frac{1}{2}$ inches overall. One of three examples $2\frac{3}{4}$ to 13 inches long. Austr. Mus., Regd. No. A.4797.

Locality.—Port Essington, Northern Territory; coll. A. Morton, 1879.

Differs from *O. papillosus* (Macleay, 1883) in characters of head and mouth, also in having longer pectoral fins. From *labiosus* it differs in having lower lip ciliated and larger scales.

Named after Mr. Geoffrey Kesteven, B.Sc., of the C.S.I.R. Marine Biological Laboratory, Cronulla, N.S. Wales, who is investigating the mullets of Australia.

Family Centrolophidae.

Tubbia *gen. nov.*

Orthotype, *Tubbia tasmanica, sp. nov.*

A genus of small Stromateiform fishes with the body ovate, compressed,

with flesh firm. Eyes fairly large, without adipose lids. Interorbital tumid. Maxillary reaching below pupil. A single row of compressed, pointed teeth in each jaw, none on vomer and palatines. Oesophageal teeth cannot be examined without damaging the specimen. Head with many mucous pores. Cheeks and opercles scaly. Preoperculum serrate. Interoperculum not spinous. Opercular spines weak. Gill-openings very wide, the membranes overlapping on the narrow isthmus. Median gill-rakers slender, spinigerous, about 12 on lower limb of first branchial arch.

First dorsal fin much reduced, of only a few small spines increasing in size backwards and joined to the extensive soft dorsal fin which, like the anal, is rounded and many-rayed. Second anal spine much longer than first. Pectorals moderate, rounded; ventrals small, rather pointed. Caudal bilobed.

Scales minute, imbricate, cycloid, often with wavy edges; l.lat. with a raised ridge of tubes roughly parallel to outline of back. Scales extend over soft dorsal, anal and caudal fins. Vent slit-like, without papilla.

Coloration plain.

Differs from *Centrolophus* in fin-formulae, in lacking a nuchal crest of spines, and having dorsal and anal fins convexly outlined, and from all other genera of the family in the combination of characters given above.

TUBBIA TASMANICA *sp. nov.*

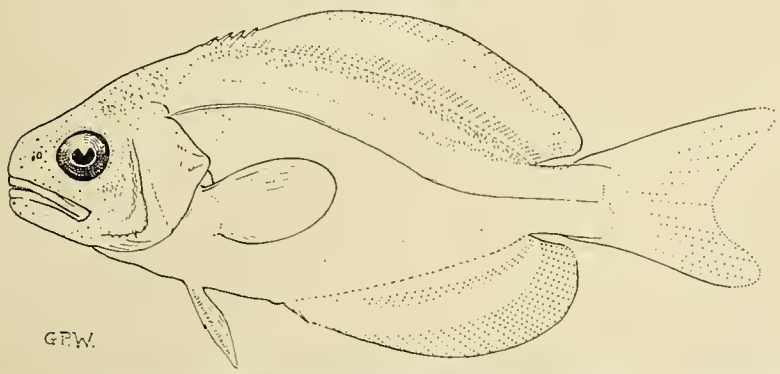

Fig. 9. Tasmanian Ruffe, *Tubbia tasmanica*. Holotype. Tasmania. G. P. Whitley, del.

Br., 7; D.iv., 45; A.ii., 33; P.ii., 16; V.i., 5; C., 17; L.lat., 144. Tr. 17/1 plus about 70.

Head (26 mm.) 3, depth (30) 2.5 in standard length (77).

Eye (7 mm.) equal to snout (7) and less than interorbital, 9 mm.

General characters as defined for genus.

A live specimen obtained by Mr. J. A. Tubb in Tasmanian waters (Austr. Mus., Regd. No. IB.1148) had the following coloration: "Dorsally and laterally pale mauve, fading to silver below. Spots on head silver. Fins slightly darker than body."

Total length, 4 inches.

Locality.—Off eastern Tasmania; M.V. "Warreen" Station, 60/41 at 42° 42' S.lat. by 148° 34' E.long. Netted between 50 metres and surface, 22/1/41.

C.S.I.R. collection. Austr. Mus., Regd. No. IB.1148.

Family Terapontidae.

The fishes of this family, generally known as Grunters or Therapons, are edible perch-like forms, generally of small size, found in the fresh waters of Australia and New Guinea, but there are allies, in salt water, as well as fresh, in the Indian and Western Pacific Oceans from the Red Sea, east coasts of Africa, Madagascar, through the East Indies to the Pacific Islands. Their characteristics are as follows:—

Head mostly naked except on sides which have small scales.

Eyes and mouth small, lips thick. Teeth in bands, the outer series enlarged. Preoperculum serrated. Two opercular spines, the lower longer.

Body oblong or ovate, compressed, covered with finely ciliated, adherent scales. Lateral line complete, bordered by larger scales. Cleithrum and supracleithrum serrated, generally exposed.

First dorsal fin with usually twelve or thirteen heteracanth spines, its outline generally emarginate, and its base longer than that of soft dorsal which has 8 to 14 rays. Anal with three spines and about 7 to 12 rays. Dorsal and anal fins with basal scaly sheaths. Ventrals inserted well behind level of pectoral base.

Colour of freshwater species usually modest, grey, silver, bronze or blackish, sometimes with small spots or dusky stripes. Marine species often silvery with dark stripes and blotches.

The numerous species of these fishes are sometimes united under the genus *Terapon*, although several nominal genera and subgenera have been proposed by authors. Analysis of their characters convinces me that separation is necessary to avoid the confusion which has been caused by indiscriminate lumping. In order to determine the names for the necessary sections, it is first necessary to tabulate, in chronological order, the generic names proposed for these fishes.

Genus Terapon Cuvier, *sensu lato*.

Terapon Cuvier, Règne Anim. ed. 1, ii., "1817" = December, 1816, p. 295. Logotype, *Holocentrus servus* Bloch, 1790, selected by Bleeker, Arch. Neerl. Sci. Nat. Harlem, xi., 1876, p. 267—*fide* Fowler, 1931. The earlier selection of *Sciaena jarbua* by Bory, Dict. Class. Hist. Nat., xiii., 1828, p. 204, is invalid as that species was not mentioned in Cuvier's original account. However, this point is not very important, since Bory, as well as later authors, regarded *Holocentrus servus* Bloch, 1790, as a synonym of *Sciaena jarbua* Forskal, 1775, non-binom = Bonnaterre, Tabl. Encycl. Meth. Ichth., 1788, p. 123, a marine Red Sea type.

Therapon Cloquet, Dict. Sci. Nat., xv., 1819, p. 299. Emended spelling of *Terapon*.

Pterapon Gray, Illustr. Ind. Zool. (Hardwicke), ii., February. 1835, pl. 88. Emendation for *Terapon*. Type, *P. trivittatus* Gray = *jarbua* Bonnaterre.

Mesopristes Bleeker, Nat. Geneesk. Arch. Neerl-Ind., ii., 1845, p. 523. Orthotype, *M. macracanthus* Bleeker = *Datnia argentea* Cuv. & Val.

Datnioides Canestrini, Verh. Zool.-bot. Ges. Wien., x., 1860, p. 305. Not *Datnioides* Bleeker, 1853, another genus of fishes (*fide* Neave, Nomencl. Zool.).

Homodemus De Vis, Proc. Linn. Soc. N.S. Wales, ix., 2, August 19, 1884, p. 395. Haplotype, *H. cavifrons* De Vis = *Hephaestus fuliginosus* (Macleay). Preoccupied by *Homodemus* Fieber, 1858, a genus of Hemiptera.

Autisthes De Vis, *ibid.*, 398. Haplotype, *A. argenteus* De Vis = *Therapon puta* C.V.

Hephaestus De Vis, Proc. Linn. Soc. N.S. Wales, ix., 2, August 19, 1884, p. 399. Haplotype, *H. tulliensis* De Vis = *H. fuliginosus* (Macleay).

Eutherapon Fowler, Journ. Acad. Nat. Sci. Philad. (2), xii., 4, 1904, p. 527. Orthotype, *Therapon theraps* Cuv. & Val.

Leiopotherapon Fowler, Bull. U.S. Nat. Mus., 100, xi., May 8, 1931, pp. 328 and 353. Orthotype, *Datnia plumbea* Kner.

From the above, it is at once seen that the true genus *Terapon* applies to *servus* Bloch, a marine species with the spinous dorsal fin emarginate, its penultimate spine much shorter than the ultimate, a large black blotch on first dorsal membrane, very small scales on body, caudal fin with oblique dark bars and with the lower opercular spine enlarged and reaching beyond opercular lobe. *Therapon* and *Pterapon* are classical emendations only and thus direct synonyms of *Terapon*, with the same genotype.

The next name, *Mesopristes*, was proposed in a book which is not available to me, so I quote the reference from Neave's "Nomenclator Zoologicus." Although said to have been published in 1845, the name *Mesopristes* is not in Sherborn's excellent "Index Animalium." The genotype is *Mesopristes macracanthus* Bleeker, 1845, from Java, regarded by authors as conspecific with *Datnia argentea* Cuvier and Valenciennes (Hist. Nat. Poiss., iii., April, 1829, p. 139, pl. 54), also from Java.

The tautotype of the genus *Datnia* Cuvier, 1829, is *Coius datnia* Hamilton Buchanan, 1822, a Gangetic Sparoid wrongly regarded by Cuvier as conspecific with his Java type, so *Mesopristes* comes in for *macracanthus* = *argenteus*.

Mesopristes is at once separable from *Terapon* in almost every particular. The spinous dorsal fin is not emarginate, but the anterior spines are very long and strong, the penultimate and ultimate spines subequal; no dark blotch on first dorsal membrane and no stripes on body; caudal fin plain; lower opercular spine not enlarged and scarcely reaching opercular lobe; preorbital deep with longer snout, scales much larger, second anal spine very long and strong, soft anal margin convex instead of concave.

In Australia, *Mesopristes argenteus* has been reported from Queensland.

Datnioides and *Homodemus* are doubtful synonyms of *Terapon*, but since both names are preoccupied they are invalidated and there is no need to consider them further.

Autisthes is available for *puta*, which is closely allied to true *Terapon*,

but may be maintained as distinct on account of its enlarged preopercular armature, more widely spaced nostrils, and the stripes following the axis of the body.

Hephaestus is obviously the generic name to be used for the majority of the Australian freshwater "Therapons." Its facies is well shown in Ogilby and McCulloch's description and figure of *"Therapon" fuliginosus.*

With *Eutherapon,* we revert to the striped marine forms, this genus being separable from *Terapon* and *Autisthes* by having much larger scales, seven or eight rows between lateral line and spinous dorsal fin and about 55 in lateral series. In 1931, Fowler wrongly included this genus of his in the small-scaled section of his key.

The last name requiring consideration, *Leiopotherapon,* is based on *Datnia plumbea* Kner, which is very similar to *Mesopristes,* but has the supracleithrum and cleithrum covered by scales and the preorbital smooth; its type-locality is unknown, but Fowler's specimens came from the Philippines.

As a development from the foregoing, it is now possible to provide names for some hitherto unrecognized generic groups, as follows:—

BIDYANUS *gen. nov.*

Orthotype, *Acerina (Cernua) bidyana* Mitchell (Three Exped. Int. E. Austr., i., 1838, p. 95, pl. viii. Gwydir and McIntyre Rivers, New South Wales) = *Bidyanus bidyanus.*

Lower opercular spine not enlarged. Nostrils close together on each side. Mouth small, not reaching below eye. Twelve dorsal spines, the longest longer than the rays and the last two subequal. Second anal spine elongated. Supracleithrum exposed. Sc. 75 to 89. Supralateral scales 13 or 14. Colouring plain.

Bidyan is the aboriginal name of the type-species.

Murray River system from Queensland to South Australia, and, as *ellipticus,* in rivers of Western Australia.

Therapon macleayi Ramsay (Ann. Rept. Austr. Mus., 1882 (1883), p. 13) is a synonym of *Bidyanus bidyanus.*

In order to dispose of another superfluous name, the nomen nudum, *Therapon pittii* Krefft (List of Australian Reptiles and Freshwater Fishes in the collection of the Australian Museum, Sydney, 1862, p. 12), from the Hawkesbury River, New South Wales, where Terapontidae are unknown, is hereby formally designated a synonym of *Percalates colonorum novemaculeatus* (Steindachner, 1866).

PAPUSERVUS *gen. nov.*

Orthotype, *Therapon trimaculatus* Macleay (Proc. Linn. Soc. N.S. Wales, viii., 2, 1883, p. 259, from Goldie River, Papua) = *Papuservus trimaculatus.*

Head three in standard length. Lower opercular spine not reaching opercular margin. Supracleithrum exposed. Less than 8 supralateral scales. Thirteen dorsal spines, last two subequal. Anal rays with convex margin. Body with obscure bands. Several dark spots before base of caudal fin. No black blotch on first dorsal fin.

New Guinea and North Queensland, freshwater.

AMNIATABA *gen. nov.*

Orthotype, *Therapon percoides* Günther (Ann. Mag. Nat. Hist. (3), xiv., November 1, 1864, p. 374, from Fitzroy River, Queensland) = *Amniataba percoides.*

Lower opercular spine not reaching lobe. Mouth small. Supracleithrum hidden by scales. Body deep, compressed, crossed by several dark vertical bands. Scales large, in less than forty series. Thirteen dorsal spines, longest spines and rays subequal. Anal spines moderate.

Ataba is an aboriginal name used in Queensland for marine *Terapon.*

Tropical Australia; freshwater.

AMNIATABA PERCOIDES BURNETTENSIS *subsp. nov.*

A new subspecific name is required for the specimens mentioned by Ogilby and McCulloch (Mem. Qld. Mus., v., 1916, p. 107) from the Upper Burnett River. The key-characters given by those authors will serve to separate *burnettensis* from typical *percoides* from the Fitzroy River. Holotype of the subspecies: a specimen 5 inches long from Eidsvold; Austr. Mus. Regd. No. I.12197, from Dr. T. L. Bancroft.

PELSARTIA *gen. nov.*

Orthotype, *Therapon humeralis* Ogilby (Proc. Linn. Soc. N.S. Wales, xxiv., 1, August 8, 1899, p. 177, from Houtman's Abrolhos, Western Australia) = *Pelsartia humeralis.*

Profile of head convex. Mouth small. Lower opercular spine not produced. Nostrils widely separated on each side of head. Supracleithrum exposed. Body elongate-ovate. Sc. 80-90. Supralateral scales 14 or 15. Longest of the twelve dorsal spines much longer than the rays.

A dark humeral blotch. Several dark bars on body, and small spots on soft dorsal, anal, and caudal fins.

Coasts of Western Australia; marine.

AMPHITHERAPON *gen. nov.*

Orthotype, *Datnia* ? *caudavittata* Richardson (Zool. Voy. Erebus and Terror, Fish, 1845, p. 24, pl. xviii., figs. 3-5, from Harvey River, Western Australia) = *Amphitherapon caudavittatus.*

Lower opercular spine not reaching beyond lobe. Mouth small, barely reaching below eye. Suprascapular bone hidden by scales. Less than sixty lateral and 8 supralateral scales. Thirteen dorsal spines, the longest longer than the rays. Caudal fin with a conspicuous black blotch on each lobe.

Tropical Australia and New Guinea; estuarine.

SCORTUM *gen. nov.*

Orthotype, *Therapon parviceps* Macleay (Proc. Linn. Soc. N.S. Wales, viii., 2, July 17, 1883, p. 201, from Upper Burdekin River, Queensland) = *Scortum parviceps.*

Head small, about one-fourth standard length. Lower opercular spine not reaching lobe. Supracleithrum exposed. Scales in 70 or less lateral series and 8 or more supralateral. Thirteen dorsal spines, the longest much

longer than the rays. Body without bands and tail without spots, the coloration uniform.

Inland Queensland; freshwater.

This genus also includes *Therapon hillii* Castelnau, 1878, which has head $3\frac{1}{2}$ in standard length, and the deep-bodied *Therapon barcoo* McCulloch and Waite, now *Scortum hillii* and *Scortum barcoo* respectively.

Family Sillaginidae.

Sillago analis *sp. nov.*

D.xi/17; A.i., 15; P.i., 15; V.i., 5; C., 15 branched rays. L.lat. 60 to hypural joint. L.tr., $5\frac{1}{2}$/1/10; below first dorsal, to 4/1/5 on caudal peduncle. About 24 predorsal scales.

Head (95 mm.) 3, depth (62) 4.7, width (44) 6.6 in standard length (294). Eye (17) 5.58 in head. Snout, 40; interorbital, 22; length of pectoral, 51; depth of caudal peduncle, 31 mm., the latter being less than postorbital portion of head (34.5 mm.).

Snout subconic. Upper jaw the longer, but not reaching back to level of nostrils. Interorbital slightly depressed, wider than eye. Four rows of cheek-scales below eye. Teeth coarsely villiform, in bands in each jaw, none enlarged. Preopercle entire. Scales of head cycloid, of body weakly ctenoid.

General form of head and body and disposition of fins as usual in the family, none of the spines or rays produced, though the first ventral raytips are pointed. Dorsal fins separate. Base of soft dorsal (83 mm.) much longer than that of anal (62). Ventral spine not expanded as a cartilaginous pad, originating well before level of first dorsal fin. Caudal emarginate, upper lobe longer, equal to pectoral.

General colour, after long preservation, pale brownish, without any conspicuous bars or spots. The median parts of the scales of back and flanks are finely infuscated and there are dusky tinges on snout, opercles, pectoral bases, and towards tip of first dorsal fin. Other fins plain. Slight grey trace of what may have been a silver axial streak in life. Eye bluish grey.

Described from the holotype of the species, a specimen 294 mm. in standard length or $13\frac{3}{4}$ inches overall. Austr. Mus. Regd. No. I.13118.

Locality.—Shark's Bay, Western Australia; Fisheries Department, Western Australia, 1914.

Distinguished from its congeners mainly by its fin- and scale-counts, and comparative size of eye.

In authors' keys, it comes apparently nearest *Sillago macrolepis* Bleeker (Nat. Tijdschr. Ned. Ind., xvii., 1858-9, p. 166; figured in Atlas Ichth., ix., 1877, pl. 389, fig. 1) from the East Indies, but differs in having deeper body, smaller eye, more cheek-scales and fewer anal rays.

Family Acanthocybiidae.

Genus Acanthocybium Gill, 1862.

Acanthocybium solandri (Cuv. & Val., 1832).

Cybium solandri Cuvier & Valenciennes, Hist. Nat. Poiss., viii., 1831 (Jan., 1832), p. 192; ed. 2, p. 141. No locality [= Between Lagoon and Thrumb

Cap Islands, Paumotus; about 18° S.long. by 138° W.lat. Cook's first voyage, 4 April, 1769—*fide* Günther, 1876, and Hooker, 1896]. *Id.* Günther, Journ. Mus. Godef., xi., 1876, p. 153, pl. xciv., figs. A (type, from Solander's drawing) and B.

Scomber lanceolatus Cuv. & Val., *loc. cit.*, p. 204, *ex* Solander (*not* Forster) MS. Same locality. *Id.* Hooker, Journ. Sir J. Banks, 1896, p. 70. *Id.* Sherborn, Index Anim., pt. 29, 1932, p. 100.

Acanthocybium solandri Boulenger, Proc. Zool. Soc. London, 1897, p. 272, and of modern authors. *Id.* Marshall, Mem. Qld. Mus., xii., 1941, p. 62 (Queensland). "Wahoo" McPhee, Power Boat, September 10, 1939, p. 13 (N.S. Wales). *Id.* Simpson, Angling and Gun Sport, October 31, 1939 (Queensland). *Id.* McPhee, Power Boat, January 10, 1940, p. 8. *Id.* Serventy, C.S.I.R., Pamph. 104, 1941, p. 20 (Australia).

The Wahoo or Peto, a celebrated sporting fish in other waters, was only recently recorded from Queensland by Marshall (1941). The late Professor A. Watson obtained a specimen before 1935 in North-western Australia which was identified at the British Museum. Two large trematode worms from it were sent to Dr. T. Harvey Johnston, from whom I first heard of this fish in Australia.

In August, 1939, Mr. T. C. Roughley informed me that Queensland anglers had caught Wahoo on the Great Barrier Reef. In "Power Boat," September 10, 1939, p. 19, one was recorded from off Coff's Harbour, New South Wales. It is thus evident that the Wahoo is found in northern New South Wales, Queensland and N.W. Australia.

The record trolled fish, caught off Bird Island, Hawaii, was 6 ft. 8 inches long and weighed 124¾ lb. The largest specimen seen by me in the Brisbane Fish Markets, March 29, 1943, was 51 inches overall and weighed 35 lb.

Though *Acanthocybium solandri* is often credited with a world-wide range, it is possible that several separate geographic species are concerned. The following names have been proposed:—

A. sara (Lay and Bennett, 1839), Japan.

A. petus (Poey, 1860), Cuba.

A. verany (Doderlein, 1872), Sicily.

A. forbesi Seale, 1912, Philippines.

Family Salariidae.

Istiblennius *gen. nov.*

Orthotype, *Salarias mulleri* Klunzinger, 1879.

Blennies with the general facies of *Salarias* Cuvier, 1816, but with the dorsal and anal fins very high, the former incised and united with the caudal, and the latter free; ocular tentacle simple.

From *Entomacrodus* Gill, 1859, *Istiblennius* is separable, notably by having superciliary tentacles, dorsal joined to caudal, more anal rays, and in lacking the large recurved teeth in lower jaw. This genus enters section EE of my key (Great Barrier Reef Exped. Sci. Rept., iv., 9, 1932, p. 297) but differs from *Rupiscartes* Swainson, 1839, in having fewer ventral rays and in not being anguilliform.

ISTIBLENNIUS MULLERI (Klunzinger, 1879).

Salarias mulleri Klunzinger, Sitzb. Akad. Wiss. Wien., lxxx., 1, 1879, p. 388. Hobson's Bay, Victoria. Type in Wurrtemb. Naturaliensammlung, Stuttgart, seen. *Id.* Macleay, Proc. Linn. Soc. N.S. Wales, ix., May 23, 1884, p. 36; Cat. Fish. Austr., 1884, suppl., p. 36. *Id.* Lucas, Proc. Roy. Soc. Vict. (2), ii., 1890, p. 29. *Id.*, Weber, Siboga Exped., lvii., Fische, 1913, pp. 528 and 535. *Id.* McCulloch and McNeill, Rec. Austr. Mus., xii., 2, 1918, p. 16. *Id.* McCulloch, Austr. Mus. Mem., v., 1929, p. 344.

? *Entomacrodus calurus* Fowler, Journ. Acad. Nat. Sci. Philad. (2), xii., 4, 1904, p. 555, pl. xx. Padang, Sumatra. Has fewer anal rays and mandibular canines present.

No species of "*Salarias*" is found so far south as Victoria, so that it is obvious that the type-locality "Hobson's Bay" for *S. mulleri* is an error. It is more likely to have come from the Indo-Australian archipelago or adjacent shores. Perhaps Baron Müller obtained it from Darwin, but the locality must remain doubtful. I sketched the type-specimen in Germany before the war and give the first illustration of the species here.

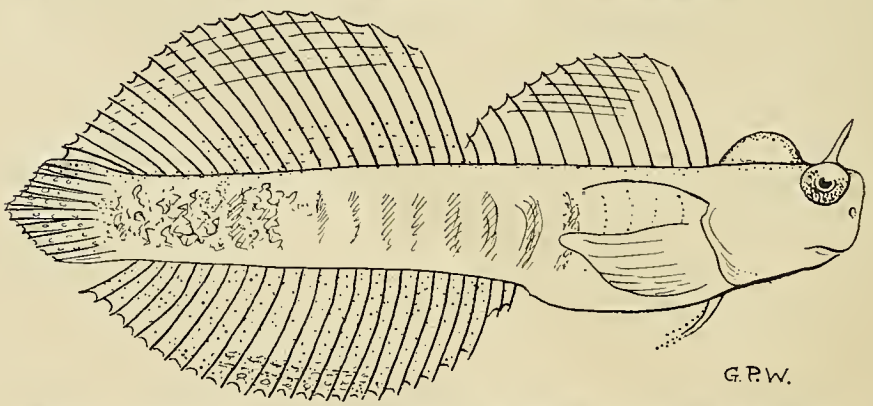

Fig. 10. Blenny, *Istiblennius mulleri*. Holotype in Stuttgart Museum. G. P. Whitley, del.

D., 12/20; A., 2 + 23-24; height, 8; head, 5½ in total length; eye, 3 or rather more, in head.

Fairly long but low, roundly curved crest on the nape. Orbital cirrhus simple, shorter than eye. Profile of head rectangular or the snout even slopes somewhat backwards. Upper lip entire. No canines. Dorsal fin deeply incised. First dorsal fin slightly lower than second, somewhat more than height of body and as high as the anal fin. Second dorsal fin united to caudal, rounded behind. Anal fin free from caudal, with two short rays anteriorly.

Colour brownish; in the middle part of the body are numerous, dark-margined, small crossbands, which do not reach the back or belly; posteriorly they become indefinitely wavy and reticulated. Body anteriorly with pale blue cross-stripes which are bent with the convex side forwards. Abdomen and sides of thorax colourless in all the vicinity of the pectorals. Head without any particular markings. Nuchal crest with black margin.

Both dorsal fins with numerous oblique (bluish ?) brown marginal stripes, which, however, are missing in the middle of the height of the second dorsal fin. Anal fin only towards the margin with fine azure blue dots or little streaks, about four above one another, otherwise uniformly dusky. Pectoral and ventral fins unicoloured. Caudal fin with numerous white (or blue ?) dots. The colour markings have now almost faded from the type-specimen so have been largely restored in my figure. Length about 72 mm. or $2\frac{3}{4}$ inches.

Family Aleuteridae.

Genus Navodon Whitley, 1930.

Navodon australis (Donovan).

Balistes australis Donovan, Nat. Repos., iii., May 1, 1824, pl. lxxvi. Van Dieman's Land.

Navodon australis Whitley, Rec. Austr. Mus., xviii., 1931, p. 123 (refs.).
D., i/37; A., 36; P., 13; C., 10 branched rays.

Head (74 mm.) 3.6, depth at origins of dorsal and anal fins (90) 3 in standard length (270). Eye, 18 mm.; snout, 57; gill-opening, 24; first dorsal spine, 52; interdorsal space, 79; interorbital, 22; pectoral, 20; depth of caudal peduncle, 32.

Upper profile notched before eye, not so steep as the more rounded lower profile. Teeth compressed, alternately large and small; pointed in upper jaw and incisor in lower.

Eye large, below dorsal spine, and over gill-opening.

Form elongate oval, strongly compressed. Head and body covered with a rough shagreen of small irregularly shaped denticles or spine-like papillae in close-set groups, to which debris becomes attached.

The shagreen is very coarse on caudal peduncle, but does not form a patch of setae or brush, nor are there any hooks or dermal filaments. Pubic spine obsolete. Vent large.

Dorsal spine elongate, smooth on posterior surface, very spinulose anteriorly, the spines resolving themselves into four main rows.

Soft dorsal and anal fins similar, the anal base a little further back; no perforated membranes. Pectorals small, rounded. Ventrals none. Caudal gently convexly rounded. No produced fin-rays.

General colour dark smoky-grey, fairly uniform. A few very indistinct light milky patches above anal base.

Teeth dirty white, the middle of each tooth grey and its tip brownish-yellow. Eye blue with pale yellowish iris and surrounded by a whitish ring. Gill-opening and fins pale greenish-white on membranes and rays, except the caudal rays which are smoky.

Described from a specimen 270 mm. in standard length or 1 foot $0\frac{5}{8}$ in. overall.

Locality.—Trawled between Point Perpendicular and Wreck Bay, N.S.W., in 30 to 40 fathoms in November, 1941, by Mr. William Barnes aboard the "Barraconda."

New record for N.S. Wales.